



2020 Annual City of Jacksonville Drinking Water Quality Report

PWS ID# NC0467010 Report Issued March 2021

We are pleased to present the Annual Drinking Water Quality Report. This report is a snapshot of your water quality in 2020. It includes details about from where your water comes, what it contains, and how it compares to standards set by regulatory agencies. Our goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information.

Also available online at JacksonvilleNC.gov/Water



What the EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791**.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available through the Safe Drinking Water Hotline: 800-426-4791

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Jacksonville is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at [EPA.gov/SafeWater/Lead](https://www.epa.gov/safewater/lead). You may also request to have your water tested by the City of Jacksonville at no cost.

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- 1. Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;
- 2. Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;
- 3. Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;
- 4. Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and
- 5. Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.



Source Water Assessment Program (SWAP) Results: The North Carolina Department of Environmental Quality (DEQ), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for the City of Jacksonville was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs) - SWAP Date September 10, 2020

Lower Susceptibility Rating		Moderate Susceptibility Rating	
Well #12 - Gum Branch	Well #6	Business Park #1	Deerfield #1
Well #13 - Gum Branch	Well #7	Business Park #2	Drummer Kellum #1
Well #16 - Gum Branch	Well #11 - Gum Branch Plant	Chaney Creek #1	Drummer Kellum #2
Well #17 - Gum Branch	Well #14 - Gum Branch	Chaney Creek #2	Foxhorn Village
Miracle Meadows #1	Well #15 - Gum Branch	Commons North #1	Piney Green #1
Miracle Meadows #2	Well #18 - Gum Branch	Commons North #2	Ramsey Road #1
Parkwood Soccer #2	Bell Fork #1	Commons South #1	Williamsburg Plantation #1
Williamsburg Plantation #2		Commons South #2	

More About the Source Water Assessment Program: The complete SWAP Assessment report for the City of Jacksonville may be viewed online at NCWater.org. Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name, number, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at 919-707-9098.

It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the systems’ potential to become contaminated by PCS’s in the assessment area.

Water Quality Data Table of Detected Contaminants: The City of Jacksonville routinely monitors for over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that were detected in the last round of sampling for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2020.** The EPA or the State requires the City to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Regulated Synthetic Organic Contaminants (SOC) and Volatile Organic Compounds (VOC) were sampled in 2020, and results of those analyses were all below detection limits. Inorganic Compounds were sampled in 2020, and the results for detected contaminants are contained within this report.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Important Drinking Water Definitions

Not-Applicable (N/A) – Information not applicable or not required for that particular water system or for that particular rule.

Non-Detects (ND) – Laboratory analysis indicates contaminant is not present at the level of detection set for the particular methodology used.

Parts per million (ppm) or Milligrams per liter (mg/L) – Corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (ug/L) – Corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) – A measure of the radioactivity in water.

Action Level (AL) - Concentration of contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water.

Maximum Residual Disinfection Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Locational Running Annual Average (LRAA) – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.

Level 1 Assessment – A study of the water system to identify potential problems and determine, if possible, why total coliform bacteria have been found in our water system.

Level 2 Assessment – A very detailed study of the water system to identify potential problems and determine, if possible, why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Secondary Maximum Contaminant Level (SMCL) – Non-enforceable guidelines regarding chemicals that may cause cosmetic or aesthetic effects in drinking water. EPA recommends these secondary standards but does not require water-supply systems to comply.

Water Quality Data Table of Detected Contaminants (See Definitions Section)

We routinely monitor for over 150 contaminants in your drinking water according to Federal and State laws. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk.

The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Regulated Synthetic Organic Contaminants (SOC) and unregulated SOC contaminants were sampled in 2020, Volatile Organic Compounds (VOC) were sampled in 2020, and results of those analyses were all below detection limits. Inorganic Compounds were sampled in 2020, and the results for detected contaminants are contained within this report.



Microbiological Contaminants 2020 - 50 Monthly samples, 600 annual samples

Contaminant (units)	MCL Violation	Your Water	MCL Goal	Maximum Contaminant Level	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	No	N/A	N/A	TT*	Naturally present in the environment
Fecal Coliform or E. coli (presence or absence)	No	0	0	Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples following E.coli positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli Note: If either and original routine sample and/or its repeat sample(s) are E. coli-positive, a Tier I violation exists.	Human and animal fecal waste

**If a system collecting 40 or more samples per month finds greater than 5% of monthly samples are positive in one month, an assessment is required.*

Lead and Copper Contaminants - June 2020 - 30 Samples

Contaminant (units)	Sample Date	Jacksonville Water	Number of sites above the AL	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Copper (ppm) (90 th percentile)	2020	0.098	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90 th percentile)	2020	<3	1	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits

Radiological Contaminants - 2019 & 2020

Contaminant (units)	Sample Date	MCL Violation	Jacksonville Water	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Alpha emitters (pCi/L)	2020	No	<3 - 9.1	0	15	Erosion of natural deposits
Beta/photon emitters (pCi/L)	2019	No	18.8	0	50*	Decay of natural & man-made deposits
Combined radium (pCi/L)	2019 & 2020	No	<1	0	5	Erosion of natural deposits
Uranium (pCi/L)	2019	No	<0.67	0	20.1	Erosion of natural deposits

**The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.*

Inorganics Contaminants - 2020

Contaminant (units)	Year Sampled	MCL Violation	Jacksonville Water (AVG)	Range Low-High	Maximum Contaminant Level Goal	Maximum Contaminant Level	Likely Source of Contamination
Fluoride (ppm)	2020	No	0.8	0.2 - 1.2	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Sodium (ppm)	2020	No	171	35 - 315	N/A	N/A	Naturally present in the environment
Sulfate (ppm)	2020	No	28	<15 - 66	250	250	Runoff or leaching from natural deposits; industrial wastes
pH (pH units)	2020	No	N/A	7.5 - 8.7	N/A	N/A	Naturally occurring

Disinfectants Residuals Summary - 2020

	Year Sampled	MRDL Violation	Jacksonville Water (Highest RAA)	Range Low-High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2020	No	1.02	0.20 - 1.99	4	4.0	Water additive used to control microbes

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Water Quality Data Table of Detected Contaminants (See Definitions Section)

Stage 2 Disinfection Byproducts Compliance - 2020 Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation	Jacksonville Water (Highest LRAA)	Range Low-High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb) [Total Trihalomethanes]	2020	No	35	14 - 43	N/A	80	By-product of drinking water disinfection
B01	2020	No	30	18 - 33	N/A	80	By-product of drinking water disinfection
B02	2020	No	34	24 - 43	N/A	80	By-product of drinking water disinfection
B03	2020	No	35	26 - 41	N/A	80	By-product of drinking water disinfection
B04	2020	No	31	14 - 41	N/A	80	By-product of drinking water disinfection
HAA5 (ppb) [Total Haloacetic Acids]	2020	No	8	6 - 9	N/A	60	By-product of drinking water disinfection
B01	2020	No	8	7 - 8	N/A	60	By-product of drinking water disinfection
B02	2020	No	7	6 - 7	N/A	60	By-product of drinking water disinfection
B03	2020	No	8	7 - 9	N/A	60	By-product of drinking water disinfection
B04	2020	No	8	6 - 9	N/A	60	By-product of drinking water disinfection



City of Jacksonville Water Sources

When you turn on your tap, consider the source. The City of Jacksonville draws its water from two aquifers located deep underground. The deepest source is a Cretaceous Aquifer known as the Black Creek Aquifer. The City has 15 Cretaceous wells that draw water from the Upper and Middle Black Creek Aquifer generally located along US258 and Gum Branch Road near the Town of Richlands. The water in this aquifer is high quality and requires no treatment other than chlorination for disinfection. It is naturally soft and contains natural fluoride, essential for dental health.

The City's second source of water is the shallower Castle Hayne Aquifer. The Castle Hayne Aquifer also contains good quality water; however, the City does treat this water to remove organics and improve taste and smell. The City has 20 wells in the Castle Hayne Aquifer that are pumped to the City's Nano-filtration water treatment plant. Once treated, the water is pumped into the City's distribution system where it blends with water from the Black Creek Aquifer.

Water Treatment Plant

The City's Water Treatment Plant uses a system called nanofiltration, which safely removes undesirable organics, salts, and contaminants that may have bad taste. Nanofiltration is an advanced treatment method that can also reduce salt levels and eliminate contaminants that older methods cannot treat. Tap water must also undergo stringent Environmental Protection Agency (EPA) mandated testing.

The plant can process up to 4 million gallons of water daily. Incoming water is treated with an antiscalant, a safe chemical that protects filters from buildup. The Water Plant uses a computerized monitoring system that allows staff to monitor and control the performance of water filtration during all stages of treatment.

Testing is conducted at all stages of treatment and filtration. Lab testing helps to determine the quality of the water coming into the plant from the Castle Hayne Aquifer and water that has been treated at the plant.

After the nanofiltration process is complete, water is treated with a bio scrubbing system, which uses a safe chemical to eliminate any naturally occurring odors that remain. Water is then disinfected, conditioned, and the pH is adjusted. Cleansed water is held in a 2 million gallon container before distribution.



Get a Water Saving Kit

at Utility Billing
inside City Hall

Commercial Water Testing and "Purification" Products:

There are many companies that want to sell you a product using tactics to scare you about your water. Before you invite someone to test your water or install a filter process, **call the City's Water Plant** to speak with an expert: 910 938-5234



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in accordance with NC & Federal Laws

Contact Us

If you have any questions about the report or your City water, contact the Jacksonville Water Plant at 910 938-5234. We want our valued customers to be informed about their water utility. Regular meetings of the Water and Sewer Advisory Committee are held monthly at City Hall and are available to view on G10TV and g10tv.org.